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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,201	07/08/2003	Chi Fai Liu	039236-007000	9686

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NIXON PEABODY, LLP
401 9TH STREET, NW
SUITE 900
WASHINGTON, DC 20004-2128

EXAMINER
ALMO, KHAREEM E

ART UNIT	PAPER NUMBER
2816	

MAIL DATE	DELIVERY MODE
07/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/616,201	LIU, CHI FAI	
	Examiner	Art Unit	
	Khareem E. Almo	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 6-10* is/are rejected.

7)☐ Claim(s) *4 and 5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 11/2/07.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/15/2007 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by applicant's own admitted prior art.

With respect to claim 1, Figure 1 of applicants own admitted prior art discloses a sawtooth generator for generating a sawtooth waveform as a function of a periodic pulse (30) coupled to said generator, comprising: a first capacitor (28) that is charged as a function of said periodic pulse and then discharged at a predetermined rate such that

the voltage on said first capacitor defines said sawtooth waveform; and a reference circuit for limiting the peak voltage of said sawtooth waveform as a function of a predetermined reference voltage (29), said reference circuit including a zener diode (26) for generating said predetermined reference voltage in response to a predetermined bias current pulse when said zener diode is reverse biased, a first circuit (32 36) coupled between said zener diode and said first capacitor and operative to limit the peak voltage on said capacitor as a function of said predetermined voltage, and a second circuit (32) for generating said predetermined bias current pulse that is a function of said periodic pulse such that said predetermined bias current is turned on during the time said first capacitor is being charged and off for a substantial amount of the time when said first capacitor is discharging.

With respect to claim 2, Figure 1 of applicants own admitted prior art discloses a sawtooth generator of claim 1, wherein said periodic pulse is generated by a zero crossing detector (30) having two terminals to which an AC input is coupled, said detector for detecting each zero crossing of said AC input and generating said periodic pulse for each said zero crossing.

With respect to claim 3, Figure 1 of applicants own admitted prior art discloses a sawtooth generator of claim 1, wherein said second circuit comprises: a first transistor (22) having a base, an emitter coupled to ground, and a collector; said zener diode (26) having an anode and a cathode; said collector connected to said anode of said zener diode at a first node; said periodic pulse being coupled to said base through a first resistor (20) such that said first transistor is switched on as a function of said periodic

pulse, and a second (18), third (16), and fourth (44) resistor connected in series between a DC supply voltage (Vcc), and said first node; wherein said predetermined bias current is provided to said zener diode as a function of said periodic pulse.

With respect to claim 6, Figure 1 of applicants own admitted prior art discloses sawtooth generator of claim 3, wherein said second circuit further comprises: a third capacitor (24) connected in parallel across said emitter and collector of said first transistor (22).

With respect to claim 7, Figure 1 of applicants own admitted prior art discloses sawtooth generator of claim 1, further including a second transistor (32) having a base coupled to the junction of said second (18) and third resistor (16), an emitter connected to the junction of said third (16) and fourth (44) resistor, and a collector coupled to said first capacitor (28) through a fifth resistor (38).

With respect to claim 8, Figure 1 of applicants own admitted prior art discloses sawtooth generator of claim 1, further including a constant current source (48) for discharging said first capacitor (28).

With respect to claim 9, Figure 1 of applicants own admitted prior art discloses a sawtooth generator for generating a sawtooth waveform at an output terminal and including a first capacitor (28), a first circuit (22) for charging said first capacitor to a predetermined voltage as a function of an input pulse, a second circuit (48) for discharging said first capacitor at a controlled rate, and a third circuit (38) for generating a voltage at said output terminal as a function of the voltage across said first capacitor, a reference circuit for limiting the peak voltage on said first capacitor comprising: a

zener diode (26) for generating a predetermined reference voltage in response to a predetermined bias current when said zener diode is reverse biased, a fourth circuit (34) coupled between said zener diode and said first capacitor and operative to limit the peak voltage on said capacitor as a function of said predetermined reference voltage; and a fifth circuit (32) for generating said predetermined bias current pulse that is a function of said periodic pulse such that said predetermined bias current is turned on during the time said first capacitor is being charged and off for a substantial amount of the time when said first capacitor is discharging.

4. Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Anderson (US 3202937).

With respect to claim 10, Figure 2 of DeBoer et al. discloses a reference circuit for providing a reference voltage during a predetermined time interval of a periodic pulse comprising: a zener diode (64) for providing said reference voltage in response to a predetermined bias current when said zener diode is reverse biased, and a bias control circuit (70, 72, 74 and 62) for generating said predetermined bias current only during said predetermined time interval such that said zener diode provides said reference voltage only during said predetermined time interval (Note: Any clock circuit with a zener diode operating in reverse bias would read on this claim)

Allowable Subject Matter

5. Claims 4-5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to claim 4, the prior art fails to suggest or disclose the sawtooth generator wherein said first circuit comprises a first and second diode connected in series with said zener diode between the first node and said first capacitor at a second node as disclosed.

Response to Arguments

6. Applicant's arguments filed 5/15/2007 have been fully considered but they are not persuasive.

With respect to applicant's arguments concerning claim 1, a periodic pulsation action is formed at the output of the diode at the junction between circuit 36 and 26. This action is occurs (action of biasing the Zener diode such that it operate in reverse bias function) during the time period when transistor 22 turns off and on, turning transistor 32 off and on creating a pulsation at the cathode of the Zener diode.

With respect to applicant's arguments concerning claim 3, these arguments are not persuasive. According to Merriam Webster's Collegiate Dictionary (10^{th} edition) the common meaning of couple (coupled or coupling) is to bring (two electric circuits) into close proximity as to permit mutual influence or something that joins or connects two things together. There is no difference in saying that something is coupled or

connected however to say something is directly connected introduces the idea of having no intervening objects between them. In the current instant, because each and every circuit in the diagram of claim 3 influences each and every other circuit it can be argued (using the broadest reasonable interpretation) that the anode of the Zener diode of Figure 1 is coupled or connected to each and every other element in the circuit. Therefore, by definition, a coupling or connection via ground can provide signal coupling or signal connection as understood by one of ordinary skill in the art according to the ordinary definition (i.e. common definition) in the art and in general use.

With respect to applicants arguments with respect to claim 10 have been considered but are moot in view of the new ground(s) of rejection.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khareem E. Almo whose telephone number is (571) 272-5524. The examiner can normally be reached on Mon-Fri (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Richards can be reached on (571) 272-1736. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KEA
7/21/2007

Quan Tra
Primary Examiner
10/616201